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10/573,585	03/27/2006	Kenji Miwa	288698US2PCT	9459
22850	7590	11/04/2009		
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P. 1940 DUKE STREET ALEXANDRIA, VA 22314				
EXAMINER				
YANG, JIE				
ART UNIT		PAPER NUMBER		
1793				
NOTIFICATION DATE		DELIVERY MODE		
11/04/2009		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/573,585

Applicant(s)

MIWA ET AL.

Examiner

JIE YANG

Art Unit

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 September 2009.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
4a) Of the above claim(s) 1-8, 19 and 20 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 9-18 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 27 March 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/S508)
Paper No(s)/Mail Date 3/27/2006
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

Applicant's election with traverse of "Group II—Claims 9-18, in the reply filed on 9/21/2009 is acknowledged. The traversal is on the ground(s) that the burden is on the Office to prove reasons and/or examples to support any conclusion in regard to patentable distinction. Moreover, when citing lack of unity of invention in a national stage application, the Office has the burden of explaining why each group lacks unity with the others, i.e. why a single general inventive concept is nonexistent. The lack of a single inventive concept must be specifically described.

According to MPEP §1893.03(d) [R-7], 37 CFR 1.499. Unity of invention during the national stage, If the examiner finds that a national stage application lacks unity of invention under § 1.475, the examiner may in an Office action require the applicant in the response to that action to elect the invention to which the claims shall be restricted. Such requirement may be made before any action on the merits but may be made at any time before the final action at the discretion of the examiner. Review of any such requirement is provided under § 1.143 and 1.144.

According to the "Election/Restriction" marked 8/21/2009, the Examiner (1) has listed the different groups of claims and (2) has explained why each group lacks unity with each other group (i.e., why there is no single general inventive concept) specifically describing the unique special technical feature in each group, for example: Group I-III lack the same or corresponding special technical features for the following reasons: they lack the same of unity a posteriori because the common feature of "a metal glass

body" is known in the art. Inoue Akihisa et al (JP 2001-062548, thereafter JP'548) discloses a metallic glass wire (Title and abstract of JP'548), which reads on metal glass body as recited in the instant invention. Invention I-III lacks the same or corresponding special technical feature. Therefore unity of invention is lacking and restriction is appropriate. The Examiner further notes that the metal glass body in Group-I may be produced by the other technique without applying electromagnetic vibration as recited in the Group II, for example applying rotary disturbing as taught in the JP'548. The apparatus of Group III may also be used to produce non-metal glass material. Therefore, searching for the Group II does not require searching the whole field of Group I and Group III. Therefore, the requirement is still deemed proper and is therefore made FINAL.

Claim 1 has been amended from the original claim, claims 1-8 and 19-20 are withdrawn from consideration as being directed to a non-elected group, and Claims 9-18 remain for examination.

Information Disclosure Statement

Regarding the IDS marked 11/10/2006, the Foreign patent document AQ (FR 2 580298), AT (JP50-93229), and Non-patent literature AY (Miwa et al) are crossed out since no corresponding English translation in record.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 11, 12, and 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In the instant case, the brackets in claims 11-12, and the "and/or" language in claim 18 are not positive language. Therefore the claimed limitations are not positively included. Proper correction is needed.

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 9, 14, 15, 17, and 18 are rejected under 35 U.S.C. 102(b) as anticipated by Horimura Hiroyuki (JP 04-354837, thereafter JP'837, with the machine translation).

Regarding claim 9, JP'837 teaches a method of producing an amorphous alloy (Title and Abstract of JP'837), which reads on the method for producing a metal glass as recited in the instant claim. JP'837 teaches heating and holding the raw material in a super-cooled liquid state and activating an ultrasonic resonator for vibration to form amorphous raw material (Abstract of JP'837), which reads on the limitation of solidifying a molten metal while applying electromagnetic vibrating force to obtain metal glass as recited in the instant claim because ultrasonic vibration is one kind of electromagnetic vibration.

Regarding claims 14 and 15, JP'837 teaches that the vibration is imparted to the raw material at fluidizing state,

the super-cooled liquid is stabilized and the time till crystallizing is extended (Abstract of JP'837), which reads on the limitation of improving the metal glass forming capability by the electromagnetic vibration at liquid stage as recited in the instant claims.

Regarding claim 17, JP'837 teaches alloy $Mg_{65}Cu_{25}Y_{10}$ (a numerical value - atomic%) alloy, which is an alloy capable of forming metal glass.

Regarding claim 18, JP'837 teaches controlling the heating (table 1-2 of JP'837) and vibration conditions (Paragraph [0015] and fig.5 of JP'837) in order to obtain the desired amorphous alloy, which reads on the limitation of adjusting the vibrating force and temperature conditions as recited in the instant claim. The functionality of the metal glass and the properties of strength, toughness are recognized as properties depended on the composition and treatment process as demonstrated by JP'837. Because JP'837 teaches the same metal glass forming alloy and the similar heating and vibration controlling process to stabilize the super-cooling liquid, therefore, the properties such as the functionality of the metal glass and the properties of strength and toughness would be inherently expected in the metal glass made by the process of JP'837. MPEP 2112 III&IV.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 10-13 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horimura Hiroyuki (JP 04-354837, thereafter JP'837, with the machine translation) in view of Ikeda et al (US 6,919,003 B2, thereafter, US'003).

Regarding claim 10, JP'837 does not specify simultaneously applying a DC magnetic and AC electrical field for applying electromagnetic vibration. However, applying an external electromagnetic force without via the electrode is a well known technique, which is evidenced by US'003. US'003 teaches an apparatus and process for producing electrophoretic device (Title and abstract of US'003). US'003 teaches: "... It is also possible to apply external electromagnetic force without via the electrodes 5002 and 5004. In this instance, it is preferred to simultaneously apply a DC voltage of, e.g., +15 volts, to both electrodes, of a polarity identical to the charge polarity of the charged phoretic particles 5009 in the dispersion liquid medium 5008 so as to promote the diffusion of the charged

phoretic particles in the dispersion liquid medium 5008. It is also possible to apply an AC voltage for promoting the diffusion of the charged phoretic particles" (Col.33, lines 8-17 of US'003). Therefore, it would have been obvious to one skilled in the art to simultaneously apply a DC magnetic and an AC electrical field for applying electromagnetic vibration force as demonstrated by US'003 in the process of JP'837 because US'003 this technique is preferred to be used in a liquid medium (Col.33, lines 18-23 of US'003).

Regarding claim 11-13 and 16, the current frequency band (claims 11 and 13), magnetic field strength (claim 12), and current strength (claim 16) are recognized as result-effective variables in term of the electromagnetic vibration force, which is evidenced by US'003. US'003 teaches the frequency may be selected from a range of 10Hz to 100kHz (Col.33, lines 24-31 of US'003), choose different DC and AC (Examples 5-1 to 5-6), which will lead to the changing of the magnetic field strength and the electromagnetic vibration force. Therefore, it would have been obvious to one skilled in the art to select the optimum result-effective variables as demonstrated by the US'003 in the process of JP'837 in order to obtain the desired electromagnetic

vibration force to apply on the subject (Col.33, lines 8-17, and examples 5-1 to 5-6 of US'003).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jie Yang whose telephone number is 571-2701884. The examiner can normally be reached on IFP.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-2721244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Roy King/
Supervisory
Examiner, Art Unit 1793

Patent

JY